





# Williams Operating Corporation

Marathon, Ontario

*"Reducing our costs extends the life of our mine. The heat recovery project does this and has a significant environmental impact as well. Certainly a win-win project."*

Peter Rowlandson, Mine Manager  
Williams Operating Corporation

## THE COMPANY

Williams Operating Corporation is the mine operator for the Williams gold mine in Marathon, Ont. The mine, which was discovered in 1982, started production in 1985 and reached its design capacity of 6,000 tonnes per day in 1989. The Williams mine is owned equally by the Teck Corporation and Homestake Canada Inc.

## CHALLENGE

The initial mine ventilation system was set to provide one million cubic feet per minute (cfm) of air to the mine workings. When the company's operations expanded that was not enough air to operate the mine efficiently. Williams redesigned the ventilation system in 1993, adding a new ventilation raise and increasing the volume of air to 1.3 million cfm.

But the increased volume of air going through the ventilation system had the potential of raising the cost per tonne of ore mined - a cost which the company had to control. Henry Smith, the plant superintendent, decided there had to be a way to recover the heat from air leaving the mine and to reuse this recovered heat in the fresh air supply. Such a process had the potential of reducing the amount of fuel necessary to heat the ventilation air, which, in turn, would lower costs as well as cut the amount of carbon dioxide and carbon monoxide released into the environment.



*Williams Operating Mine Site and Head Frame*

Williams hired VB Cook Company Ltd., a consulting engineering firm from Thunder Bay, to do a feasibility study on the proposed heat recovery project.

## OPPORTUNITIES

The study confirmed that the changes Williams was considering would help to cut emissions and reduce energy use, both of which would lower the company's operating costs.

## ACTION TAKEN

The VB Cook study concluded that the proposal could realize savings of \$500,000 per year. The project was approved and the retrofit completed in 1994 at a cost of more than \$1,750,000.

The overall project included:

- \* installing a 4,000-foot ventilation raise which extended from the lowest working levels to the surface;
- \* installing a 12-foot in diameter, slow speed, efficient exhaust fan;

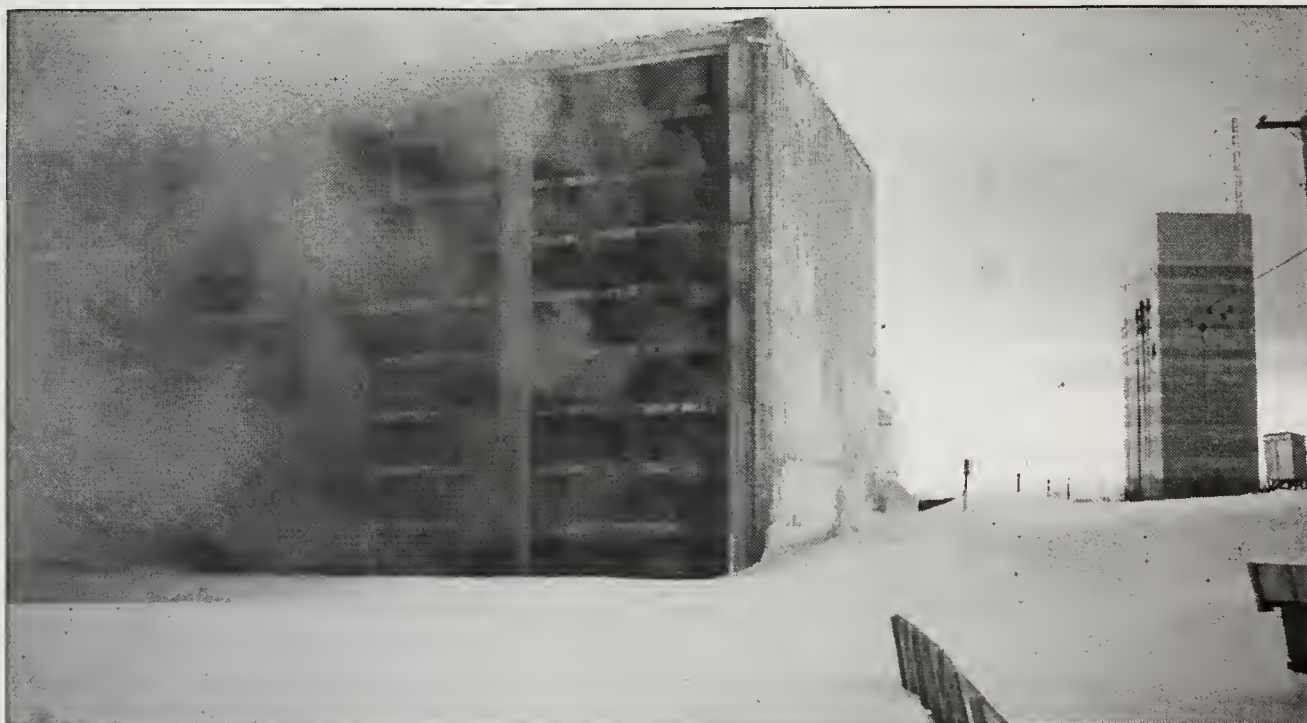
- \* converting an existing exhaust raise into a 300,000 cfm intake raise with the necessary burner heating equipment;

- \* installing heat recovery equipment including radiators, pumps, heat exchangers and pipeline enclosures.

## ACTUAL RESULTS

In November 1994, Williams started and balanced the heat recovery system and began running the exhaust fan, but at a reduced capacity. The company increased the volume of the fan to design capacity by the end of January 1995.

Company figures showed that by mid-May, the heat recovery circuit had saved \$435,000 in propane costs. The company did not reach its goal of \$500,000 in savings in 1995 because the system started up late in the heating season and because it ran at a reduced capacity for the first two months. The company expects to reach its savings goal in the next full heating season.



*Exhaust Air Outlet*

## **REPLICATION OPPORTUNITIES**

Using exhaust heat from mine air is a conservation project that every mining company could explore.

### **FOR FURTHER INFORMATION, PLEASE CONTACT:**

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## **PARTNERSHIP IN POLLUTION PREVENTION AND RESOURCE CONSERVATION**

Industrial companies located in Ontario may participate in ministry/industry programs that will help them to:

- \* use energy and water more efficiently;
- \* reduce, reuse and recycle solid waste;
- \* reduce or eliminate liquid effluent and gaseous emissions.

Equipment and services supply companies can benefit from the information provided on technologies identified for business development.

## **MINISTRY OF ENVIRONMENT AND ENERGY PROGRAMS**

For information on Ministry of Environment and Energy assistance to industry, please contact the Industry Conservation Branch at (416)327-1492, Fax (416)327-1261

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*This project profile was prepared and published as a public service by Ontario Ministry of Environment and Energy. Its purpose is to transfer information to Ontario companies about industrial companies that have undertaken retrofits that improve the environment and their bottom line.*

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